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After a review of the literature suggested that public health services are generally less prevalent among rural than among urban residents, the following null hypothesis was developed: There is no significant difference in the specified health and welfare services between certain predetermined rural and urban areas. The geographical areas selected were 8 rural and 10 urban counties in Michigan, with counties having more than 20% agricultural employment being considered rural, and those with less than 5% agricultural employment being considered urban. Six comparisons of services were made for general public welfare and assistance, and 5 comparisons were made for public mental health. Data were for the period July, 1963, through June, 1964. A "t" test was used as the basis for accepting or rejecting the null hypothesis for each category of comparison. Conclusions of the study indicated that for the public welfare categories, 4 of 6 categories were significantly higher for rural counties. For the public health categories, no significant differences in services to rural and urban residents were revealed. (VM)

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RURAL SOCIAL SERVICES:

AN EVALUATIVE STANDARD

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A COMPARISON STUDY OF WELFARE AND MENTAL HEALTH SERVICES IN SELECTED RURAL AND URBAN COUNTIES OF MICHIGAN

ABSTRACT The purpose of this study was to compare, statistically, selected health and welfare services between rural and urban areas. A sample of ten urban counties and eight rural counties in Michigan were selected on the basis of percent of agricultural employment. Six categories of public assistance and five categories of mental health services were then compared using the t test of means. Findings indicated a generally higher number of recipients and funds for public assistance in rural counties. Mental health services compared showed no significant differences between rural and urban counties.

Fairly recent publications in rural sociology have suggested that health and welfare services are more prevalant and more complete in urban areas than in rural areas. Loomis and Beegle stated, "Public health services, with few exceptions, are less prevalant among rural than among urban residents."[1] In their book, Taylor and Jones said, "Rural people receive less welfare than urban people. It has been pointed out to confirm this rural-urban difference that pauperism and poverty were more extensive in cities than in the country."[2] A review of literature revealed that a number of sociologist claimed discrepancies in rural and urban health and welfare services in many different areas.

Because of these stated differences, it seemed necessary and timely to find studies and statistics which would either refute or substantiate these theories. To date little research has been found

which investigated this specific problem. Statistics from government and private sources did not differentiate between rural and urban areas. Loomis and Beegle indicated this in their discussion of public assistance by saying, "Data concerning rural and urban areas separately are difficult to secure."[3] They did quote one study, published by the Social Security Administration, which showed that more aged persons in rural areas than in urban areas received public assistance. The absence of Old Age and Survivors' Insurance among farm people was given as the reason for this.[4]

PROCEDURE

The problem, as defined, involved two very broad areas. One area, the entire United States, was assumed in most of the literature. The other area included the complete public health and welfare field. It was decided that this study would be kept small and in the nature of a preliminary investigation.

It was obvious that the working hypothesis could not encompass the entire problem. Therefore, it would have to be narrowed considerably. The purpose of the study was to determine any differences in urban and rural health and welfare service, which meant that the comparison could produce one of three possible results (higher urban, higher rural, or no difference). A null hypothesis was developed which stated, "There is no significant difference in the specified health and welfare services between certain predetermined rural and urban areas."

The geographical location of the study was kept within the confines of one state. Michigan was chosen primarily because it encompasses both highly urban and highly rural sections and enough of each to be truly representative. Six categories were chosen which would be classified under general public welfare: (1) number of recipients (monthly average) of Aid to the Blind, (2) number of recipients of Aid to Dependent Children (children), (3) number of recipients of Aid to Dependent Children (families), (4) number of recipients of Old Age Assistance, (5) county funds used in public assistance, (6) state and federal funds used in public assistance.[5] Also included in the study were five categories classified under public health: (1) number of admissions to mental hospitals, (2) number of admissions to state training schools for the mentally retarded and epileptic, (3) number on the waiting list for these training schools, (4) number of referrals to Community Mental Health Clinics, and (5) number of agency referrals to these clinics.[6] All of the data were for the period from July, 1963, through June, 1964.

Definition of rural and urban areas was accomplished using county boundaries. Determination of rural and urban was almost entirely on the basis of percent of agricultural employment. This percent was found by dividing the number of those agriculturally employed into the number of the total labor force.[7] On the basis of these figures it was determined that, to be considered rural, a

county must have more than 20% agricultural employment and to be considered urban it must have less than 5% agricultural employment. All counties over 20% were included as rural, but only ten of the counties under 5% were included as urban. When there was a choice of counties with the same percent, those with the larger population were chosen. The result is given on Table 1.

Some of the employment statistics were given for a combination of two or three counties on Table 1.[8] However, in all other sources data were given separately for each county.

After the eighteen counties were determined, charts were completed which included the actual welfare and health statistics as stated previously. Table 11 and Table 1V give this information. For comparison purposes the data were then converted to figures which were based on 100 population. This tabulation is given on Table 111 and Table V. A t test for significance was used as a basis of either accepting or rejecting the hypothesis. The level of significance was established at 5%.

PUBLIC ASSISTANCE

In considering the null hypothesis, a t test was done for each category under public assistance. On Table 111, column (1), the null hypothesis was rejected at the 5% level of significance. This indicated a higher average number of recipients of Aid to the Blind

in rural counties.

In column (2), which corresponds to the number of children receiving ADC, the null hypothesis was accepted, while in column (3), which corresponds to the number of families on ADC, the null hypothesis was rejected. This suggested that, although the average number of families receiving ADC was larger in rural counties, the number of children per family was larger in the urban areas.

Column (4) again showed a rejection of the null hypothesis, indicating that there was a significantly higher average number of recipients of Old Age Assistance in the rural areas.

Column (5) showed an acceptance of the null hypothesis, suggesting that there was no significant difference in the county funds expended in general relief, institutional care and hospitalization between rural and urban counties. However, it was noted that one county, Montmorency, had an unusually high amount of county funds expended in this time period compared to other rural counties and also compared to its expenditures in the 1962-1963 time period.[9] Thus, a second t test was computed in which the Montmorency county figure was disregarded. This second test rejected the null hypothesis and indicated a higher average expenditure of county funds in urban counties.

The t test in column (6) rejected the null hypothesis and showed a higher average expenditure of state and federal funds in rural counties.

State and federal funds were used for vendor medical payments, including AB, ADC, and OAA, and also general relief and state-administered programs.

MENTAL HEALTH SERVICES

Mental health services were chosen as a part of this study because of recent research which has indicated a higher rate of phychoses and psychoneurosis for rural than for urban dwellers. In a recent publication a World Health Organization was quoted:". . .in a study of selective examinations for the U.S. Armed Services it was found that the rejection rate for psychoses was 4.5 per 1000 for men from the country and only 3.1 per 1000 for men from the city.

> Rejections for psychoneurosis were 44 per 1000 for countrymen and 37 per 1000 for townsmen and rejections for all mental disorders together were higher for farmers and farm managers than for any other occupation class.[10]

As shown on Table V, the t test for all five columns accepted the null hypothesis and indicated that there was no significant differences between rural and urban counties in any of the services studied.

DISCUSSION

In view of the general theory about rural health and welfare services, the results of this study were somewhat unexpected. The theory suggested that, generally, there might be relatively fewer recipients and less funds for public assistance in the rural areas. However, in the public assistance division of the study, four of the six categories were significantly higher

for rural counties. The only real exception to this was in the expenditure of county funds, which was in most rural counties substantially lower. An interesting follow-up would be to compare the use of county funds in rural and urban counties in order to determine which types of service or aid are substantially different.

Concludsions concerning mental health services were that this study revealed no significant differences in services to rural and urban residents. However, if the need were actually greater in rural areas, as has been indicated, this result could mean a deficiency in service to the rural residents.

The results of this study were considered cautiously because of the limited sample. Since the research involved only a relatively small geographical area and only a small number of the large and varied health and welfare services, it could not be considered conclusive in relation to the general theory.

The significance of this study seemed to be that it foretold limitless possibilities for research in the general area of rural social services. Its value was in developing investigative techniques. Using the same research design, studies of other states might reveal entirely different results. Such data could be of value to those apportioning funds for health and welfare services. Statistics indicating relative need of rural and urban areas would also be helpful.[11] In this way research and theory can promote more efficient service.

FOOTNOTES

1
Charles P. Loomis and J. Allan Beegle, Rural Sociology (Englewood Cliffs, N.J.: Prentice-Hall, Inc, 1957), p. 346.

2
Lee Taylor and Arthur R. Jones, Jr., Rural Life and Urbanized Society (New York: Oxford University Press, 1964), p. 462.

3
Loomis and Beegle, op. cit., p. 389

4
Ibid., p. 392

5.
Data obtained from Michigan Social Welfare Commission, Thirteenth Biennial Report: July 1962 - June 1964 (Lansing, Michigan, 1964), pp. 105-165

6
Data obtained from Michigan Department of Mental Health, Michigan Mental Health Statistics: Annual Report, July 1963 - June 1964 (Lansing, Michigan: Systems and Analysis, 1965).

7
Data obtained from Michigan Employment Security Commission, Agricultural and Non-Agricultural Employment, a special report prepared by Michigan Department of Economic Expansion (Lansing, Michigan, 1966).

8
On Table 1, note Clinton-Eaton-Ingham, Kent Ottawa, and Macomb-Oakland-Wayne.

9
The reason for this difference has not been determined.

10
News item in The Des Moines Register, March 13, 1967. Full report has not yet been published.

11

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The Des Moines Register, March 13, 1967.

TABLE 1

LABOR FORCE, AGRICULTURAL EMPLOYMENT, PERCENT OF AGRICULTURAL EMPLOYMENT AND TOTAL POPULATION FOR EIGHTEEN MICHIGAN COUNTIES

County	Labor Force	Agri. Emp.	% Agri. Empl.	Total Pop.*
Antrim	4,525	1,508	33%	10,373
Huron	10,537	3,000	30%	34,006
Lake	1,687	500	31%	5,338
Montmorency	1,691	500	30%	4,424
Oceana	3,975	983	25%	16,547
Presque Isle	5,295	1,758	33%	13,117
Sanilac	11,193	3,122	27%	32,314
Tuscola	11,733	2,545	21%	43,305
Genesee	143,200	1,400	1%	374,313
Ingham	114,200	4,900	4%	211,296
Kalamazoo	70,000	1,700	2%	169,712
Kent				363,187
Ottawa	145,800	2,500	2%	98,719
Macomb				405,804
Oakland	1,400,300	6,700	0.4%	690,259
Wayne				2,666,297
Muskegon	55,200	700	1%	149,943
Saginaw	68,200	2,100	3%	190,752

*Based on 1960 census report

TABLE 11

NUMBER OF RECIPIENTS OF AB, ADC, OAA AND FEDERAL, STATE, AND COUNTY FUNDS EXPENDED FOR PUBLIC ASSISTANCE IN EIGHTEEN MICHIGAN COUNTIES

County	AB*	Children on ADC*	Families on ADC	OAA*	County Funds	State, Fed. Funds
	(1)	(2)	(3)	(4)	(5)	(6)
Antrim	7	91	34	185	$50,091	$385,964
Huron	9	356	123	300	75,169	719,150
Lake	6	170	61	222	16,417	354,268
Montmorency	4	40	11	58	37,697	107,878
Oceana	5	169	60	173	35,216	347,707
Presque Isle	6	135	54	176	34,855	288,392
Sanilac	3	179	56	287	55,039	402,569
Tuscola	5	307	117	372	88,301	816,213
Genesee	53	3,197	1,100	1,493	1,592,143	5,413,172
Ingham	38		883	1,126	1,276,186	3,670,021
Kalamazoo	41	2,447	860	1,066	843,126	3,227,833
Kent	57	3,528	1,173	2,371	2,180,865	6,194,039
Ottawa	12	570	212	451	257,602	935,144
Macomb	23	2.242	755	897	1,353,108	3,224,564
Oakland	52	4,512	1,577	1,955	2,606,403	6,515,204
Wayne	714	47,834	17,449	16,515	12,581,080	58,361,105
Muskegon	34	2,111	722	776	817,647	2,850,490
Saginaw	73	2,657	880	967	1,061,725	3,164,843

*Based on monthly averages

TABLE 111

NUMBER OF RECIPIENTS OF AB, ADC, OAA, AND FEDERAL, STATE, AND COUNTY FUNDS EXPENDED FOR PUBLIC ASSISTANCE IN EIGHTEEN MICHIGAN COUNTIES PER 100 POPULATION

County	(1)					
Antrim	.067	.880	.330	1.780	$482	$3721
Huron	.026	1.050	.380	.88	221	2115
Lake	.112	3.180	1.14	4.16	308	[illegible]37
Montmorency	.090	.900	.250	1.310	852	2438
Oceana	.030	1.020	.360	1.050	213	2101
Presque Isle	.046	1.030	.410	1.340	266	2199
Sanilac	.009	.550	.170	.890	170	1246
Tuscola	.012	.710	.270	.860	204	1884
X =	.049	1.170	.414	1.534	339	2793
Genesee	.014	.850	.290	.400	425	1446
Ingham	.018	1.180	.420	.530	604	1737
Kalamazoo	.024	1.440	.410	.520	497	1902
Kent	.016	.970	.320	.650	600	1705
Ottawa	.012	.580	.210	.460	261	947
Macomb	.005	.550	.190	.220	335	795
Oakland	.008	.650	.220	.280	378	944
Wayne	.027	1.790	.650	.620	472	2188
Muskegon	.023	1.410	.410	.520	545	1901
Saginaw	.038	1.390	.460	.510	557	1659
X -	.019	1.081	.037	.482	467	1522
t =	2.128	.298	2.286	2.997	1.596	2.288

df = 16
P = .025
*t test disregarding Montmorency County

TABLE IV

NUMBER OF RECIPIENTS OF AB, ADC, OAA, AND FEDERAL, STATE, AND COUNTY FUNDS EXPENDED FOR PUBLIC ASSISTANCE IN EIGHTEEN MICHIGAN COUNTIES PER 100 POPULATION

COUNTY	AB	CHILDREN ON ADC	FAMILIES ON ADC	OAA	COUNTY FUNDS	STATE, FED. FUNDS
ANTRIM	.067	.880	.330	1.780	482	3721
HURON	.026	1.050	.380	.880	221	2115
LAKE	.112	3.180	1.140	4.160	308	6637
MONTMORENCY	.090	.900	.250	1.310	852	2438
OCEANA	.030	1.020	.360	1.050	213	2101
PRESQUE ISLE	.046	1.030	.410	1.340	266	2199
SANILAC	.009	.550	.170	.890	170	1246
TUSCOLA	.012	.710	.270	.860	204	1884
X =	.049	1.165	.414	1.534	339 266 *	2793
GENESEE	.014	.850	.290	.400	425	1446
INGHAM	.018	1.180	.420	.530	604	1737
KALAMAZOO	.024	1.440	.410	.520	497	1902
KENT	.016	.970	.320	.650	600	1705
OTTAWA	.012	.580	.210	.460	261	947
MACOMB	.005	.550	.190	.220	335	795
OAKLAND	.008	.650	.220	.280	378	944
WAYNE	.027	1.790	.650	.620	472	2188
MUSKEGON	.023	1.410	.410	.520	545	1901
SAGINAW	.038	1.390	.460	.510	557	1659
X =	.018	1.081	.358	.471	467	1522
T =	2.486	.278	.517	3.031	1.545	2.268
DF = 16					3.651 *	
P = .025						

* DISREGARDING MONTMORENCY COUNTY

TABLE 1V

NUMBER OF RECIPIENTS OF FIVE SELECTED MENTAL HEALTH SERVICES IN EIGHTEEN MICHIGAN COUNTIES

County	Adm. to Mental Hosp.	Adm. to Schools	Waiting List for Schools	Referrals To CMHC	Agency Referrals*
Antrim	14	1	1	21	1
Huron	20	7	2	14	0
Lake	8	3	0	13	0
Montmorency	3	2	0	7	2
Oceana	5	6	3	26	2
Presque Isle	11	1	1	35	4
Sanilac	24	1	2	120	5
Tuscola	21	6	5	42	7
Genesee	153	94	53	1,272	135
Ingham	92	20	12	615	108
Kalamazoo	157	37	18	387	37
Kent	184	66	38	537	98
Ottawa	34	16	7	212	13
Macomb	159	92	42	356	65
Oakland	318	127	40	479	54
Wayne	2,945	603	312	1,110	119
Muskegon	82	56	16	726	89
Saginaw	141	34	30	548	73

* Includes child guidance clinics, health, social, public and private agencies

TABLE V

NUMBER OF RECIPIENTS OF FIVE SELECTED MENTAL HEALTH SERVICES IN EIGHTEEN MICHIGAN COUNTIES PER 100 POPULATION

COUNTY	ADM. TO MENTAL HOSP.	ADM. TO SCHOOLS	WAITING LIST	REFERRALS TO CMHC	AGENCY REFERRALS
ANTRIM	.130	.009	.009	.200	.009
HURON	.060	.021	.006	.040	0
LAKE	.150	.056	0	.240	0
MONTMORENCY	.070	.045	0	.160	.045
OCEANA	.030	.036	.018	.160	.011
PRESQUE ISLE	.080	.008	.008	.270	.030
SANILAC	.070	.003	.006	.370	.015
TUSCOLA	.040	.013	.012	.010	.016
X =	.079	.024	.007	.181	.016
GENESEE	.040	.025	.014	.340	.036
INGHAM	.040	.009	.006	.290	.051
KALAMAZOO	.090	.022	.011	.230	.022
KENT	.050	.018	.101	.150	.027
OTTAWA	.030	.016	.007	.210	.013
MACOMB	.040	.023	.010	.090	.016
OAKLAND	.050	.018	.006	.070	.008
WAYNE	.110	.023	.012	.040	.004
MUSKEGON	.050	.037	.011	.420	.059
SAGINAW	.070	.018	.016	.290	.038
X =	.057	.021	.019	.213	.027
T =	1.371	.448	1.152	.549	1.440

DF = 16
P = .025

TABLE V

NUMBER OF RECIPIENTS OF FIVE SELECTED MENTAL HEALTH SERVICES IN EIGHTEEN MICHIGAN COUNTIES PER 100 POPULATION

County	Adm. to Mental Hosp.	Adm. to Schools	Waiting List	Referrals to CMHC	Agancy Referrals
	(1)	(2)	(3)	(4)	(5)
Antrim	.130	.009	.009	.200	.009
Huron	.060	.021	.006	.040	0
Lake	.150	.056	0	.240	0
Montmorency	.070	.045	0	.160	.045
Oceana	.030	.036	.018	.160	.011
Presque Isle	.080	.008	.008	.270	.030
Sanilac	.070	.003	.006	.370	.015
Tuscola	.040	.013	.012	.010	.016
X =	.079	.024	.007	.193	.016
Genesee	.040	.025	.014	.340	.036
Ingham	.040	.009	.006	.290	.051
Kalamazoo	.090	.022	.011	.230	.022
Kent	.050	.018	.101	.150	.027
Ottawa	.030	.016	.007	.210	.013
Macomb	.040	.023	.010	.090	.016
Oakland	.050	.018	.006	.070	.008
Wayne	.110	.023	.012	.040	.004
Muskegon	.050	.037	.011	.420	.059
Saginaw	.070	.018	.016	.290	.038
X =	.057	.021	.010	.213	.027
t =	1.429	.491	1.5	.360	1.467
df = 16					
P = .025					

ERRATA

	$\bar{X}_1$	$\bar{X}_2$	M_1	M_2	S_1^2	S_2^2	F	t	V
ABLIND	.049	.018	8	10	$141X10^{-5}$	$9.61X10^{-5}$	14.6 H.S.(1)	2.49 S(2)	8
CHADC	1.16	1.08	8	10	.693	.181	3.82	.278	16
FAMADC	.414	.358	8	10	.092	.020	4.60	.520	16
OAA	1.53	.471	8	10	1.23	.019	65.4 H.S.	3.03 S	7
COFUND	339	467	8	10	52,400	13,500	3.90	-1.54	16
COFUND	266	467	7	10	9,480	13,500	1.43	-3.65 H.S.	15
STFUND	2790	1520	8	10	$29.0X10^{5}$	$2.26X10^{5}$	12.8 H.S.	2.27	8
MENHOS	.079	.057	8	10	$17.3X10^{-4}$	$6.46X10^{-4}$	2.68	1.38	16
SCHOOL	.024	.021	8	10	$38.0X10^{-5}$	$5.30X10^{-5}$	7.17 H.S.	.448	9
WAIT	.0070	.019	8	10	$3.57X10^{-5}$	$83.3X10^{-5}$	23.3 H.S.	-1.15	10
CMHS	.181	.213	8	10	.0139	.0157	1.12	-.55	16
AGENCY	.016	.027	8	10	$2.32X10^{-5}$	$3.36X10^{-5}$	1.45	-1.36	16

(1) Significant at 1% level.

(2) Significant at 5% level.